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ABSTRACT

This paper contains suggestions for a course about student-centered case studies in an effort to enhance student research and internships in international nongovernmental organizations (NGOs). The curriculum is in addition to a currently existing International Environmental Policy course. The areas of the curriculum include: (1) "India's Environmental History"; (2) "Development"; (3) "Environmental Policy"; and (4) "Case Studies." The case studies approach requires students to research current environmental issues and develop policy intervention. A sampling of case studies are suggested. Contains 24 primary and secondary sources. (EH)

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by

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India Summer Seminar. "Continuity and Change India on the Threshold of the 21st Century"

Curriculum Project
Maeve Hitzenbuhler

"Economic development has been the byword in India's march into the 21st century. Sadly, in India, economic development has been equated with rapid industrialization. Mesmerized by the magic of the industrialization mantra, our captains of industry paid little heed to matters like the effect of deforestation on local communities dependent on forests for their survival, the effect on aquatic life of the indiscriminate discharge of untreated wastes into public waters, or, the effects of pollution on public health. And while our political leaders mouthed their rhetoric on environmental pollution and our populace slumbered in ignorance, our air got dirtier, and our water more contaminated. Years of inaction have taken their toll. A recent World Bank study shows that in India the economic costs of health and environmental degradation alone amount to RS 24,500 a year"

Ail Agarwal, Editor
Centre for Science and Environment, Delhi

Objectives

A. To explain developments in Indian environmental policy since the 1970s and to analyze the central issues that face India is the current decade.

B. To focus on underlying trends, institutional shortcomings and policy dilemmas that all policy actors face in attempting to resolve environmental controversies.

C. To study environmental policy through environmental history.

Strategies

This course focuses on student centered case studies in an effort to enhance student research and internships with international NGOs. This curriculum is an addition to a currently existing International Environmental Policy course.

I. India's Environmental History

The curriculum will begin with a study of ancient India's incorporation of environmental management as a way of life. How the culture was cognizant of the synergistic balance of human, animal and plant life and how moral injunction acted as a framework for environmental protection. The history will incorporate environmental policy and political goals of the Moghul period, followed by the modifications in policy during the British rule (including the collapse of ancient tenure patterns, diminishment of community control of natural resources and its impact on

environmental sustainability and the introduction of the zamindar system). Although in the early years following independence, environmental protection did not receive strong support, national programs in sanitation, public health, nutrition, water supply and housing did. We will look at how these programs impacted the environment.

II. Development

A primary goal in the protection of natural ecosystems and the environment is the development of comprehensive protective and promotional environmental policy while keeping abreast of the frequently changing causes, sources and impact of environmental degradation. India is currently bearing a burden of environmental degradation due to the negative effects of a developing economy and from the conditions of poverty and underdevelopment. This course will attempt to delineate how India's environmental issues may be due to lack of development rather than to excessive development and how these issues are integral parts of the unfolding process of development and environmental policy.

The course will further study the adoption of models of development drawn from historical experience of industrialized nations, particularly in technology and investment, and determine how they are proving to be ecologically disastrous in India. It will look at how these models have precipitated the daunting problem of ecological refugees which comprise fifty percent of India's urban populations. A related issue of study is the shifting policy paradigms. What is the impact of environmental policy shifts in growth ethos when policy is penned from the position of the environment and development rather than the environment versus development?

III. Environmental Policy

Despite a flurry of legislative mandates, regulatory measures have not succeeded in

combating environmental degradation in India. Environmental protection is challenged by India's desire to industrialize, become self-sufficient and fulfill the basic needs of its growing population.

If policy formulation is an instrument of transformation, how should environmental policy in India identify problems, make choices among alternatives on the basis of comprehensive analysis of benefits and costs, and articulate those choices in terms of goals?

The seventies marked the beginning of the history of environmental policy in India. Enhancing quality of life while incorporating environmental concerns and assessing economic and technical feasibility became part of development projects. A number of programs under the Minimum Needs Programs (elementary education, rural health and sanitation, nutrition and clean drinking water) received high priority.

During the 1980s, Indian national legislation was a paradigm of protection mechanisms including mandatory controls and legal enforcements. However, the control approach was reactive and curative. There was little effort to internalize environmental damage or costs as it was easier for industry to pay penalties rather than to comply with regulations. This legislation may have inhibited the technological development necessary for environmental protection.

This course will look at the policy approaches of the 1970s, 1980s and 1990s. Some of the issues to be discussed include:

A. A study of cost benefit analysis of policy and legislative requirements that all polluters meet the same standards without consideration in the disparity in abatement costs. How would the same environmetal results be achieved if industries incurring low abatement costs were required to meet more strident standards than those incurring higher abatement costs?

B. An assessment of policy approaches with regard to pragmatic waste management in production processes and raw material extraction. How could policy lend itself to assessment rather than end pipe controls?

C. The study of environmental policy analysis from an integrated approach including the views of policy decisions from other sectors including industry, energy, water and economic policy.

D. How does India's environmental policy attempt to strike a balance between environmental protection and economic development to achieve ecological compatibility and economic efficiency in an endeavor to ensure sustainable development?

E. How does India approach the daunting environmental policy impact of determining standards for effluents under industry specific standards while taking into account the capability of industry to bear the cost of pollution control while giving equal consideration to the cost of environmental damage or source of emission?

F. To maintain a balance between economic development and environmental protection, the government of India has framed a National Policy on Environmental Protection. Here, an attempt is made to outline national policy and the regulatory mechanism developed for implementing it. Some of the issues this course will address include: whether the legislative measures designed to control and abate environmental pollution have succeeded in achieving the objectives of the national policy on the environment; to what extent do gaps exists between the formulation of policy and the implementation of legal controls; to what extend have the

pollution control boards established under the Water and Air Acts been able to discharge their mandates effectively under these laws; and, how is India developing an integrated and systematic approach to environmental law and evaluation of the issues associated with management strategies.

IV. Case Studies (Students will utilize case studies to research current environmental issues and develop policy interventions. A sampling of case studies follows.)

A. Environmental Health/Policy in West Bengal: Arsenic in Ground Water

Independence and partition of Bengal precipitate large influxes of refugees and strained the urban infrastructure. In the Calcutta Metropolitan district, which comprises 70% of the state's urban population, the problem has become critical as urban renewal in Calcutta cannot keep pace with the needs of it's population including infrastructural development for water supply, sanitation, disposal of wastewater and solid waste. The problem has been exacerbated by the continual pressures of urbanization, population growth and urban poverty. Concurrently, the rural population continues to suffer from lack of sanitation and safe drinking water, malnutrition and ecological insecurity.

The traditional problems of water and air borne infections combine with malnutrition and poor environmental sanitation to form a vicious cycle which is increasing the burden of disease beyond the capacity of the existing health infrastructure. The health of the urban community is further endangered by the increasing risk of toxic and hazardous waste and high level of urban air pollution from industrial and automobile sources. All major ambient air quality parameters are either well above permissible limits or close to threshold values. Although epidemiological assessment of the effects of air pollution on community health in Calcutta has not been

undertaken, the short term and long term exposure of high levels of sulphur dioxide and high level of suspended particulate matters could be one of the key etiologic factors in diseases such as asthma, bronchitis and emphyacema.

Less than 10% of the rural population in West Bengal have facilities for excreta disposal and drinking water sources are contaminated routinely. The public health systems are struggling to maintain a balance between the competing priories of curing diseases and containing epidemics along with promoting environmental and preventive health. They have stressed curative rather than preventive actions under the stress of crisis management. Arsenic contamination of ground water in West Bengal was first survailled in 1983. Since then more than 1500 cases of toxicity have been reported but many more are suspected to be suffering. Studies by several institutes reveal that along a long stretch of land in the Gangetic Delta in West Bengal and Bangladesh spreading in six West Bengal and twenty three Bangladesh districts (population more than fifty million) ground water contain high arsenic levels. While it has been established that parts of the districts mentioned are affected and substantial number of tubewells in these districts are contaminated with arsenic, it may be erroneous to presume that all the tubewells are pollutted or that the total population of these districts are at risk. Among the people using arsenic contaminated ground water, all are not equally affected.

WHO recently called for the Governments of India and Bangladesh to declare a public health emergency on arsenic toxicity.

B. The Ganga Action Plan

The plan was implemented by late prime minister Rajiv Gandhi. The main objective of the plan is to improve water quality of the Ganga. Besides aiming at controlling pollution of the river, the

plan was to serve as a model to restore the ecological health of India's water bodies.

The Ganges action plan has been able to show improvement in the water quality of the river in terms of biochemical oxygen demand and dissolved oxygen. Because of this success, it was decided to extend the program to its second phase. The second phase includes:

i. Pollution abatement works in the polluted stretches of major tributaries of Ganga.

ii. Pollution abatement works in the 25 towns which could not be included in the first part of the plan.

iii. Pollution abatement works in other towns along the Ganga which are responsible for polluting the river.

C. Human Excreta and Waste Water Disposal

Although sewerage systems are the best method for disposal of human waste because it takes care of both human excreta as well as waste water from bathrooms and kitchens, sewerage systems require large investment in laying sewer lines and constructing treatment plants and related facilities. Even in cities such as Paris, only 46% of its liquid waste is treated; the rest flows into the river Seine. In developing countries being able to secure the capital and bearing the operation and maintenance costs is daunting. In addition, sewerage requirements includes large quantities of water to function properly and for flushing the toilets connected to sewers almost six times more water is required than for pour flush system.

In addition to the high cost, another difficulty with sewerage systems is its management. Maintenance costs if often higher in India than municipal taxes. Because of budgetary constrains, the local governments are unable to operate and maintain the systems with cross subsidies and sewers are chocked due to lack of cleaning and maintenance. Since all the houses on a given street are not connected, the household waste water along with waste from the streets empties into the sewers through gully pits. Discharge of such waste and soil and insufficient water due to

lack of house connections results in chocking of sewers causing many of them to become defunct.

D. Air Pollution

Health problems due to increasing vehicular air pollution has become a serious concern in India. Most of the 23 Indian cities with a population over 1 million, have air pollution levels which are dangerously higher than the standards recommended by the World Health Organization. In Delhi, Calcutta, Mumbai, Ahmedabad, Kanpur, and Nagpur, levels of suspended particulate matter are three to five times higher than the WHO standards. Suspended particulate matter is dust and carbon particles coated with toxic gases. Vehicular pollution is the main culprit in most cities. In Delhi, it accounts for 65 percent of the total pollution. Industry and thermal power plants contribute 25%, while the remaining 10% is due to domestic activity. No studies on health effects of vehicular pollution have been conducted in India.

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